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ABSTRACT

This guide outlines an information systems curriculum that has been developed for postsecondary institutions in Texas. The curriculum, which is intended to help students acquire the competencies necessary to function in automated offices in business and industry, includes the following core courses: computer business applications I and II, database systems, telecommunications/networking, applied information systems, integrated information systems, information systems administration (the capstone course), communication for the automated office, and human behavior in organizations. Courses in the following subjects have been included as electives: principles of management, records management and/or forms management, principles of accounting/managerial accounting, programming languages, entrepreneurship, economics, and human relations. The course requirements for associate degree and certificate programs in information systems are outlined. The major portion of the guide is devoted to descriptions of the required courses. Each course description contains the following: course title, student level, duration, prerequisites, overview, objectives, and content. The guide concludes with a list of suggested careers in information systems. (MN)

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INFORMATION SYSTEMS

CURRICULUM

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INFORMATION SYSTEMS CURRICULUM FOR POST-SECONDARY INSTITUTIONS IN THE STATE OF TEXAS

INTRODUCTION

Purpose and Mission.

This curriculum is designed to train Information Systems professionals in the competencies necessary to meet the needs of automated offices in business and industry. It is a direct response to industry's expressed need for entry-level employees able to operate and understand today's information-based technologies.

The U. S. Office of Technology Assessment estimates that, within the next twelve years, 80 percent of all jobs will be computer-related. Movement from an industrial society to an information society demands workers who can handle the challenge of information manipulation and assessment. Therefore, a sizeable and varied portion of the population will need practical instruction in Information Systems. This curriculum, created in response to that need, offers training to widely disparate groups. The open-entry/open-exit format provides training for recent high school graduates following the traditional career path as well as for students who lack academic preparation, for members of the work force who seek to upgrade their skills, and for those who need to retrain in order to find a job.

Although developed for the two-year post-secondary level, the curriculum offers articulation for both high school and university levels. However, specific target groups are (1) students pursuing a post-secondary associate degree or certificate program, and (2) persons seeking to sit for and pass certain portions of the Certified Systems Professional (CSP) examination.

Research and Development.

This Information Systems curriculum is the product of extensive research. Several computer searches of the literature as well as manual searches of various other databases and resources were completed to build on existing information and to enhance the comprehensiveness of this curriculum. An advisory committee composed of members of the Association for Information Systems Professionals (AISP) and educators in secondary, post-secondary, and collegiate institutions in Texas identified six broad component areas into which 304 identified competency statements were categorized.

Two key groups--AISP members (nation-wide) and post-secondary educators in business/office technologies (State of Texas)--rated the importance of each component and competency. The advisory committee validated the competency statements that are included in the curriculum. Thus, the Information Systems curriculum reflects the perceptions of information professionals in business, industry, and education.

Commitment and Role.

This curriculum is the product of commitment by three entities: the Coordinating Board, Texas College and University System, which provided the monetary support for the curriculum development project; the Association for Information Systems Professionals, which provided the technical and professional support; and the Technical

Education Department in the College of Technology, University of Houston, which provided the manpower, resources, and expertise.

The curriculum is intended to meet the needs of students with a wide-range of backgrounds toward building the skills that will enable them to function effectively in the changing world of Information Systems. At the same time, the curriculum is designed to provide business and industry with competent entry-level Information Systems personnel.

Curriculum Plan.

Figure 1, the Information Systems Curriculum for Post-Secondary Institutions in the State of Texas, illustrates the flexibility of the curriculum at all levels to integrate the student into the curriculum on an individualized basis. In order to meet the needs of the identified audiences (traditional, academically under-prepared, displaced workers, and career changers), individual courses should be developed as illustrated in Figure 1. In this way, individualized-paced progress will be maximized.

Prerequisites and General Education Courses.

To benefit from the courses outlined below, students need basic proficiency in the following areas:

Keyboarding/Word Processing. Maximum benefit from this curriculum will be obtained by students who have a conceptual background in information processing and hands-on applications orientation. An essential proficiency is the understanding of the document processing cycle of input, output, processing, storage, retrieval, and distribution. Skill in word processing utilizing automated equipment will enhance this proficiency. In addition, proofreading skills must be emphasized.

English. Grammar, spelling, and punctuation skills must be exhibited through successful completion of written communications through the 12th-grade level. Beyond this pre-requisite, students should take at least one post-secondary level course in English composition and one post-secondary level course in speech.

Communication. Written and oral presentation skills are essential to this curriculum. Prerequisite to further refinement of communications skills is a basic working knowledge of communications. At least two courses, with emphasis on business communications, should be completed at the post-secondary level.

Math. A mastery of high-school algebra and mathematical problem solving to a level of college entrance proficiency is required.

Instructional Strategies.

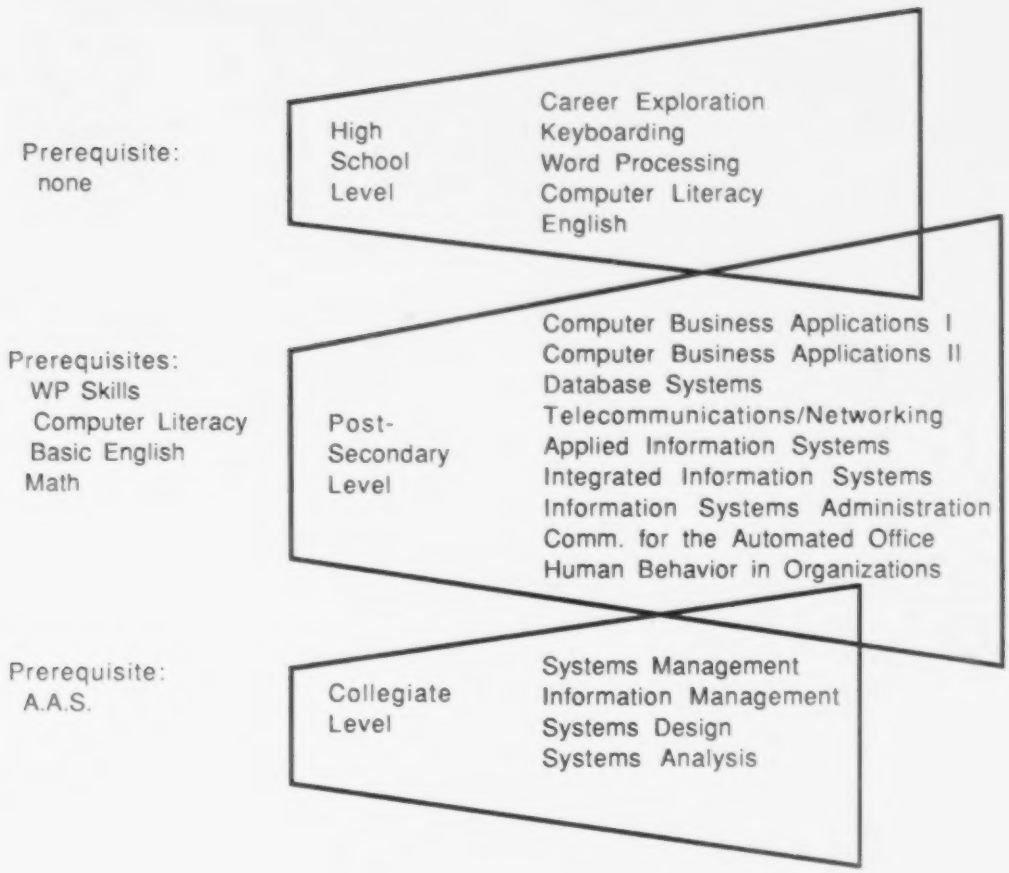
In teaching the prerequisites, general education, and core courses in the Information Systems curriculum, it is strongly suggested that the following two methodologies be utilized by instructors:

Problem Solving. In order to give students a realistic view of the world of work, it is necessary to include in all Information Systems courses problems representative of those they will encounter on the job. Not only do students learn from developing solutions, but they are also motivated by this technique.

Case Study. This method has proved particularly valuable in motivating students to become involved in and work toward solutions. The case study approach is strongly suggested for inclusion in the capstone course in this curriculum.

Figure 1.

INFORMATION SYSTEMS CURRICULUM FOR POST-SECONDARY INSTITUTIONS IN THE STATE OF TEXAS



POST-SECONDARY CURRICULUM

The sequence of courses in the Information Systems is intended to build upon previous learning and practice. It is anticipated that students who complete this sequence will be qualified to enter careers in which they function as end users, Information Systems analysts, Information or Office Systems specialists, Information Systems administrators, Information Processing Center supervisors in business and industry.

Core Courses

Computer Business Applications I

Computer Business Applications II

Database Systems

Telecommunications/Networking

Applied Information Systems

Integrated Information Systems

Information Systems Administration (capstone course)

Communication for the Automated Office*

Human Behavior in Organizations*

(*These two courses were developed as part of this curriculum because of the strong input from business educators and Information Systems professionals. The developers of this curriculum are aware that external accreditation requirements may have an impact on these courses within business/office technology programs, and that there may be existing courses which will overlap with the course content.)

Electives

Principles of Management

Records Management and/or Forms Management

Principles of Accounting/Managerial Accounting

Programming Languages

Entrepreneurship

Economics

Human Relations

INFORMATION SYSTEMS DEGREE PROGRAM

Associate of Applied Science Degree (A.A.S.)

FIRST YEAR*

FIRST SEMESTER		SECOND SEMESTER	
Course	Hours	Course	Hours
English I	3	English II	3
Math or Science	3	Economics/Government	3
Applied Psychology/Economics	3	Computer Bus. Applications II	4
Computer Bus. Applications I	3	Database Systems	3
Human Behavior in Organ.	3	Speech	3
	15		16

SECOND YEAR*

Course	Hours	Course	Hours
Applied Information Systems	3	Info. Systems Administration	3
Comm. for Automated Office	3	Comm. for Automated Office	3
Telecomm./Networking	3	Managerial Accounting**	3
Accounting I	3	Integrated Information Systems	3
Approved Elective**	3	Approved Elective**	3
	15		15

*Students planning to transfer to a four-year college or university must be apprised of Southern Association for Colleges and Schools general education requirements, as follows: 15 hours must be taken from three categories: Arts & Humanities (3 hours), Social and Behavioral Sciences (3 hours), Math and Natural Sciences (3 hours); and 6 additional hours from any of the three categories.

**Choose from suggested electives for Information Systems majors:

Principles of Management
Records Management and/or Forms Management
Principles of Accounting and/or Managerial Accounting
Programming Languages
Entrepreneurship
Economics (a SACS requirement in Social and Behavioral Sciences)
Human Relations

CERTIFICATE PROGRAMS IN INFORMATION SYSTEMS

The certificate programs in Information Systems are intended to provide immediate employment or entry into the Information Systems function in business or industry. Ideally, it is suited for individuals who need upgrading or retraining for employment or advancement. The two certificate programs are set up on a semester basis, as follows:

One Semester Certificate Program

Computer Business Applications I	48 hours
Communications for Automated Office	48 hours
Database Systems	48 hours
or	
Telecommunications/Networking	48 hours
Human Behavior in Organizations	48 hours

One Year Certificate Program

First Semester

Computer Business Applications I	48 hours
Communications for Automated Office	48 hours
Human Behavior in Organizations	48 hours
Database Systems	48 hours

Second Semester

Computer Business Applications II	96 hours
Communications for Automated Office	48 hours
Applied Information Systems	48 hours
Telecommunications/Networking	48 hours

COURSE TITLE: **Computer Business Applications I**.

Student level: Freshman (or beginning adult).

Course duration: One semester.

Prerequisites: Information Processing skills.

Course description: This course is the foundation for the Information Systems curriculum. The course content builds on existing knowledge of the information processing cycle through in-depth business applications. Reinforcement and enlargement of existing skills is emphasized through the utilization of integrated software in order to create, edit, revise, and disseminate word processing, database, and spreadsheet documents with graphics incorporated. It is anticipated that this course will have strong appeal for students returning to school for advanced training or retraining. In addition, this course is basic to a certificate program and is the first in a sequence in the two-year degree program.

Students will review and apply the information processing concepts as they relate to the automated office. Emphasis should be placed on vocabularies, structures, formats, and functions of software and hardware environments.

Although most hands-on applications will be geared toward the use of microcomputers, applications for dedicated word processor, minicomputer, and microcomputer environments should be included as appropriate in the course content.

Course objectives: At the end of this course, the student will be able to:

- -- demonstrate an in-depth knowledge of integrated software in order to create, edit, revise, and disseminate word processing and database documents; and to create, audit, revise and disseminate spreadsheets.
- -- identify, operate, and develop an understanding of the peripherals of computers; specifically, printers, monitors, disk drives, and plotters.
- -- identify, use, and develop an understanding of computer recording media; specifically, floppy disks, hard disks, and other storage devices.
- -- demonstrate the use of advanced features of software; specifically, macros; creating forms, charts, and tables; mail merge; outlining; mathematical functions; and other functions.
- -- format, revise, and integrate graphics in any or all of the documents.
- -- demonstrate correct English usage (including grammar, punctuation, and spelling) and proofreading skills and techniques to produce mailable business documents.
- -- follow directions and ask appropriate questions to clarify instructions.
- -- demonstrate the interpersonal skills of time management, professionalism, dependability, attendance, follow-up, and flexibility.
- -- demonstrate decision making skills as they relate to computer business applications.

Course content:

1. Information Processing Function (5%).

   A review of the input, output, processing, storage, retrieval, and distribution functions through in-depth discussions of the information processing cycle that can be applied to capturing, processing, reporting, disseminating, and storing of data and the importance for decision making. In essence, this is a review of vocabularies, structures, formats, and business applications.

2. Document Production, Storage, and Retrieval Devices (5%).

   Review of the operation, care, maintenance, and understanding of computer hardware, such as CPUs, keyboards, printers, monitors, disk drives, plotters in order to create, edit, audit, revise, and disseminate business documents. Media storage devices such as floppy disks, hard disks, and mainframe and minicomputer storage are reviewed to an in-depth understanding of the functions and use in the information processing cycle.

3. Computer Business Applications (80%).

   In-depth, hands-on business applications through the introduction of a variety of documents which would be encountered in the automated office. Emphasis is placed on creating (formatting with advanced features), revising, auditing and editing, and disseminating mailable documents. Proof-reading techniques and skills, as well as English (including grammar, punctuation, and spelling), are emphasized. Timely, consistent, and relevant feedback to the students will enhance skill development.

4. Interpersonal and Communications Skills (10%).

   Throughout this course, students should demonstrate the ability to ask questions and follow directions, make use of their time efficiently and effectively in completing assignments, set high professional standards for themselves and their work, set deadlines for themselves, dependably get their work in on time, follow-up with incomplete assignments or unfinished assignments, and be flexible in making changes in assignments. The demonstration of decision-making skills in the formatting, revising, editing, and disseminating of business documents is critical to an understanding of the importance of information in business or industry.

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COURSE TITLE: **Computer Business Applications II**

Course level: Freshman (second semester) or Sophomore.

Course duration: One semester.

Prerequisite: Computer Business Applications I.

Course description: This course builds on the enhancement of hands-on business applications in the prerequisite course, Computer Business Applications I. This course will seek to develop skills in comparing, evaluating, selecting, and manipulating software and hardware, evaluating recording media, and developing factors in the selection of storage and retrieval systems for hardware in an automated environment. Emphasis will be focused on software utilized in the program delivery market area and could include, but not be limited to, the following software packages: dBase, Lotus 1-2-3, WordStar, Word Perfect, Multimate, Multiplan, Windows, DisplayWrite, Lotus Symphony, Framework, Overhead Express, CrossTalk, and others. Students will utilize communications skills through the presentation of oral and written critiques of various software packages. Minicomputer, mainframe, and dedicated word processor business applications also will be included.

Hands-on operational knowledge of software in the areas of desktop management, desktop publishing, telecommunications, network management, records management, accounting, inventory, graphics and others will contribute to the broad knowledge of the interrelatedness of the Information Systems in the automated environment. In addition, the selection factors in determining the hardware to support various software applications will be covered.

Because the course content emphasizes evaluation and hands-on operational knowledge of a variety of software, it is strongly suggested that laboratory time be required and that 4 semester hours' credit be given.

Course objectives: At the end of this course, the student will be able to:

- -- demonstrate hands-on operational knowledge of several software packages in, but not limited to, the following areas: graphics, desktop management, desktop publishing, telecommunications, network management, inventory, records management, and accounting to become familiar with the interrelatedness of Information Systems within the organizational structure.
- -- compare the strengths and weaknesses of various software packages.
- -- identify and become familiar with computer recording media, including optical disks, CD-ROM, and others.
- -- identify factors in the selection of hardware, peripherals, software, media, and storage and retrieval systems.
- -- modify or change the defaults in a software applications package.
- -- utilize oral communication skills to demonstrate the salient points of software.
- -- utilize written communication skills to write critiques of software.
- -- demonstrate the skills of follow-through, communications, persuasion, reliability, and pride in self and work.
- -- work independently in order to complete the course objectives.
- -- demonstrate decision making skills and judgment related to evaluation and operational knowledge of computer business applications.
- -- demonstrate skills in research methodology as they relate to course objectives.

Course content:

1. Advanced Software Applications (45%).

   Hands-on business applications for software in the areas of telecommunications, network management, records management, desktop management, desktop publishing, inventory, accounting, and other areas. A laboratory is required so that time is provided for in-depth analysis of the selected software packages.

2. Comparisons of Software, Hardware, and Peripherals (45%).

   Comparisons, evaluations, and operational knowledge of software packages in the areas of telecommunications, network management, records management, desktop management, desktop publishing, inventory, accounting, and other areas and the hardware and peripherals which support the selected software through discussions regarding factors to be considered in the selection, modification, and utilization of software applications. Stress is placed on oral and written critiques and evaluations.

3. Interpersonal and Communication Skills (10%).

   Develop and present oral and written critiques of software applications packages, utilizing principles of oral and written communications. On-going evaluation of students' ability to reliably complete course requirements, take pride in self and work, demonstrate decision making and judgment in developing and completing assignments on time, utilize research skills and follow-through as required for various assignments will enhance transfer of learned skills in this course.

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COURSE TITLE: **Database Systems**.

Course level: Freshman (second semester) or Sophomore.

Course duration: One semester.

Prerequisite: Computer Business Applications I.

Course description: This course is designed to familiarize students with database management concepts and standard database management software. Databases, their roles, advantages, and limitations are explained. Microcomputer usage and standard database software, such as dBase, should be utilized to provide hands-on applications experience with creating, designing, setting up, utilizing, and integrating databases. Knowledge of various databases and database services is included in this course. Critical to this course is a focus on providing the right information to the right people at the right time for effective decision making.

Course objectives: At the end of this course, the student will be able to:

- -- demonstrate an understanding of database management concepts and standard database management software.
- -- gather information for, create, and design flat, relational, and other database files for specific applications.
- -- utilize existing database files.
- -- compare and evaluate database management systems software in order to select and adapt specific applications for various environments and needs.
- -- set up and revise documentation guidelines for database users.
- -- integrate database files with other applications; specifically, word processing and spreadsheets.
- -- demonstrate operational knowledge of and evaluate various databases and database services, such as videotex, teletext, The Source, CompuServe, Westlaw, BRS Colleague, Dow Jones, and others.
- -- demonstrate database operations and applications to others, utilizing oral presentation skills.
- -- upload and download information from a database between microcomputer and mainframe computer.
- -- demonstrate operational knowledge of data integrity and security provisions for database systems.
- -- demonstrate decision making skills and judgment relating to evaluation and operational knowledge of database systems.

Course content:

1. Database Principles (10%).

   Review of the role, advantages, limitations, and types of databases and of data (information) as organizational assets. Database as a method for storing data (information) for access to manipulate, refine, process, and disseminate for decision making at some later time or in some different way will be included. Database file concepts, configurations, and terminology will be covered.

2. Database Applications (35%).

Use database software (preferably dBase) to complete hands-on applications which use database systems configurations. Integrate database summaries into other documents and/or reports. Demonstrate knowledge of database applications through utilization of database software for specific applications..

3. Database Development and Use (35%).

Compare and evaluate database management systems, software, and services software in order to select and adapt specific applications for various environments and needs. Gather information, design, create, set up, utilize, and integrate the selected database. Demonstrate a knowledge of the process of database development through an oral presentation.

4. Database Documentation (20%).

Set up, disseminate, and revise written guidelines and documentation for database users in an automated office. Include guidelines for physical and data security.

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COURSE TITLE: **Telecommunications/Networking**.

Course level: Freshman (second semester) or Sophomore.

Course duration: One semester.

Prerequisite: Computer Business Applications I.

Course description: This course reviews data, text, graphics, and voice communications technology and applications. Included in this course is an overview of telecommunications technology, including modems, software, transmission methodologies and rates, standards, protocols, terminology, and concepts. Emphasis will be placed on hands-on applications and/or experience through the use of software or telecommunications simulations. Operational knowledge gained through field trips, vendor presentations and demonstrations, and/or in-depth discussions should be included.

Review of networking topology and software application to the point of operational knowledge and familiarity with vocabulary and methodologies is included in this course. Written communications skill through the setting up and revising of operating guidelines for telecommunications equipment and guidelines for an automated office situation also will be emphasized.

Course objectives: At the end of this course, the student will be able to:

- -- define and master the vocabulary necessary to communicate with end users and vendors of telecommunications products and services. Specific vocabulary should include voice, electronic mail, teleconferencing, compatibility, connectivity, editability, conversion, protocols, expandability, interface, interactive, asynchronous, bisynchronous, and processability as it applies to telecommunications and networks.
- -- demonstrate an operational knowledge of electronic communications systems, such as telephone; PBX; PABX; facsimile; telex; electronic mail; voice communications (including mail, messaging, and communicating); communicating workstations; and satellite, microwave, and other transmission methodologies.
- -- list considerations in selecting telecommunications software and hardware.
- -- set up and revise operating guidelines in an office for telecommunications equipment, utilizing written communication skills.
- -- analyze methodologies, protocols, and systems for transmission of data, text, voice, and graphics.
- -- utilize a modem to receive from and transmit information to an electronic bulletin board and other individual users.
- -- indicate the relative importance of electronic communications of data, text, voice, and graphics.
- -- define the similarities and differences in standard codes for storing and transferring information.
- -- utilize batch, on-time, real time, shared logic, shared resources, or time sharing processing.

Course content:

1. Telecommunications/Networking Concepts (20%).

   Define specific vocabulary terms, such as compatibility, connectivity, conversion, protocols, expandability, interface, interactive, editability, asynchronous, bisynchronous, processability, teleconferencing, and others as they relate to telecommunications.

   Define the topologies, terminology, and major characteristics of local area networks (LANs), wide area networks (WANs), and dial-up services. Describe and explain the use of an executive work station, a multi-user work station configurations, and the factors involved in networking various work stations, utilizing the operational knowledge of network topology.

2. Telecommunications/Networking Systems (30%).

   Demonstrate an operational knowledge of electronic communications systems, such as telephone, PBX, PABX, facsimile, telex, electronic mail, voice mail/messaging, and communicating word/information processors (micros, host, dedicated and others). Discussions and hands-on utilization of a modem to receive from and transmit information to an electronic bulletin board, as well as to and from other individual users (where equipment is available) are required. In-depth knowledge of telecommunications terminology, methodologies, protocols, transmission rates, codes, and standards related to the communication of data, text, graphics, and voice. A problem-solving approach to analyzing methodologies, protocols, and systems for transmission of data, text, voice, and graphics to enhance transferability of skills learned. Considerations in selecting telecommunications hardware and software are covered. Telecommunications simulations (where equipment is not available) will meet the course objectives.

3. Telecommunications/Network Applications (30%).

   Prepare basic office layout for a local area network, tying together work-stations, printers, modems, and other peripherals (e.g., OCR, facsimile).

4. Telecommunications/Network Operational Guidelines Documentation (20%).

   Prepare written guidelines for utilizing telecommunications/networking equipment in an automated office. OR Prepare a written feasibility report, recommending the purchase and installation of telecommunications/ networking equipment in an automated office.

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COURSE TITLE: **Applied Information Systems.**

Course level: Sophomore.

Course duration: One semester.

Prerequisites: Computer Business Applications II.

Recommended prerequisites: Database Systems.
Telecommunications/Networking.

Course description: This is an in-depth structured problem solving course which relies on the knowledge and skills acquired in the prerequisite courses. Heavy emphasis is placed on group problem solving techniques which would simulate project teamwork in an organization. This course begins with a review of the importance of information to management and the organization and Information Systems concepts within the office. The elements of the organization become the framework within which problems may be encountered and solutions derived by applying Information Systems concepts and methodologies.

Problems related to the following areas include, but are not limited to: incompatibility of equipment, lack of training and documentation support, lack of documentation for the acquisition of hardware or software, lack of vendor support and knowledge, expandability miscalculation, lack of concern for physical and data security, lack of concern for the effects of change on individuals in the automated office, lack of standards and procedures for document designation, and others.

Course objectives: At the end of this course, the student will use the problem solving approach to apply Information Systems concepts, knowledges, and skills to be able to:

- -- solve problems in Information Systems in the context of the organizational structure and principles of information management.
- -- recommend solutions for incompatibility of hardware and software.
- -- develop documentation for end users of various software packages.
- -- develop training materials (and assist in and/or conduct training) for end users of hardware and software.
- -- determine problems and complete equipment diagnostics through troubleshooting.
- -- set up procedures for safeguarding and protecting information and automated equipment.
- -- work with vendors to optimize support and service for appropriate hardware, software, and materials, including troubleshooting, documentation, training, updating, and/or upgrading.
- -- research literature and other sources for acquisition and use of appropriate hardware, software, and materials.
- -- research the solutions and possible alternatives for the lack of insufficient computing capability, growth, etc.
- -- research problems, develop solutions, and present findings which apply the concepts, knowledges, and skills related to applied Information Systems.

Course content:

1. Principles of Information Management in Organizations (10%).

   Review of importance of, advantages of, and limitations related to information management (including manipulation and assessment). Review of the management functions and structures in the office within which problems encountered must be solved. Especially important in this review is the nature of the change taking place to historical organizational structures due to automated equipment. The functions of management (planning, organizing, controlling, directing) are covered in the context of the automated office.

2. Problem-Solving Techniques (10%).

   Review of problem-solving techniques is covered in this section of the course in order to be able to identify, analyze, break down, collect relevant and/or irrelevant data about, develop alternatives and choose options for, and implement solutions to the particular problems encountered in effective information management. Inherent in problem solving is the ability to communicate the solution of the problem to the people involved, taking into account the factors of written, verbal, and nonverbal communciation. The problem solving process is considered complete when the right people have been involved in the analysis, implementation, and evaluation of the problem and its solution.

3. Information Systems Projects (65%).

   Emphasis in this portion of the course will be on utilizing skills obtained in the prerequisite courses in order to apply problem solving techniques to a variety of Information Systems problems which may include, but not be limited to, the following: incompatibility of hardware and software; lack of documentation support for end users of various software packages; lack of training and/or training materials for end users of hardware and software; lack of procedures for safeguarding and protecting information and automated equipment; lack of vendor support and reliability, including debugging and documentation; lack of research for overcoming insufficient computing capability which may hamper growth within the system; lack of planning and organizing for implementation of and/or upgrading of automated systems to meet the needs of the organization; lack of physical layout design for implementing Information Systems applications within the office. The project management approach to selections of problem areas by individual or groups of students working in a team will enhance transferability of learned skills.

4. Applied Communications Skills (15%).

   An essential portion of this course is the written and oral communications skills which are required of the students to present their projects. Particular care should be taken to provide opportunities for students to present oral and written reports of their projects.

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COURSE TITLE: **Integrated Information Systems.**

Course level: Sophomore.

Course duration: One semester.

Prerequisites: Applied Information Systems.
Telecommunications/Networking.
Database Systems.

Course description: The focus of this course is the integration of the Information Systems concepts, applications, and skills, as well as equipment. Content of this course is in-depth extension of the prerequisite courses in order to gain experience and knowledge in the factors and methods for integrating financial, database, telecommunications/networking, records management, inventory, managerial, and administrative support systems within the organization.

Course objectives: At the end of this course, the student will be able to function as a resource person in order to:

- -- analyze and maintain the systems (financial, records management, inventory, managerial, and administrative) in an office in terms of interfacing equipment and people.
- -- utilize flowcharting techniques to analyze the work flow in an office to determine the best use of equipment.
- -- evaluate equipment and networking needs at the end user level.
- -- work with end users to plan responsive production to accommodate routine information needs and special projects.
- -- design the floor plan for the hardware configuration in an office to enhance productivity of employees.
- -- make decisions about and arrange for demonstration and trial usage of equipment.
- -- develop strategies to upgrade systems, including hardware and software.
- -- update and communicate instructions or procedures for equipment use based on systems changes and/or upgrades.
- -- evaluate, establish, and maintain a records inventory program, including records transfer, records retention, and records destruction.
- -- design, create, and maintain a media library system.
- -- demonstrate good working relationships with users, vendors, and MIS departments.
- -- promote the Information Systems functions to all levels of the organization.

Course content:

1. Integrated Office Principles (20%).

   Review of the principles of integrating the various business systems (accounting, inventory, records management, financial, managerial) with automated equipment. Focus is on the review of concepts of telecommunications/networking, database systems, and computer business applications with hands-on practice of various packages.

2. Database and Data Flow Concepts and Design (30%).

Analyze data flow and review database systems within business systems in order to make recommendations for selection, configuration, and installation of hardware components and software applications. Focus is on designing the floor plan, upgrading of hardware and software, and providing resource information which might include training, documentation, and research skills.

3. Records Management Project. (15%).

Evaluate the need for, set up, and maintain a records inventory program which might include records transfer, records retention, and records destruction.

4. Media/Software/Hardware/Peripherals/Telecommunications/Networking Resource Planning (35%).

Demonstrate through application, integration, and up-to-date knowledge of Information Systems that decisions can be made to analyze, upgrade and update, troubleshoot, and respond to the needs of end users and management regarding planning and organizing for change in media, software, hardware, peripherals, telecommunications and networking resources. Application and integration skills include research, analysis, troubleshooting, written and oral communications, and interpersonal skills of negotiation, team work, follow up and follow through, as well as knowledge of the organization.

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COURSE TITLE: **Information Systems Administration**

Course level: Sophomore (second semester).

Course duration: One semester.

Prerequisites: Integrated Information Systems (or concurrent enrollment).
Communication for the Automated Office (or English and Speech).
Human Behavior in Organizations (or Human Relations).
Principles of Accounting or Managerial Accounting.

Course description: The **capstone** course in the Information Systems curriculum focuses on the case study approach which builds on and utilizes the theory, hands-on applications, and knowledges acquired in the prerequisite courses. Emphasis is placed on realistic situations and challenges which exist in the automated office and for which Information Systems technology and skills are pertinent.

Course objectives: At the end of this course, the student will be able to function as an Information Systems analyst, specialist, or high-level end user, in order to:

- -- evaluate, recommend, and justify the most appropriate hardware, software, and materials for an office environment.
- -- conduct feasibility studies for the automated office.
- -- analyze the cost/benefit justification of Information Systems.
- -- evaluate the appropriateness of preventive maintenance and service contracts for hardware and software.
- -- coordinate the installation of hardware and software.
- -- analyze and plan for data security.
- -- develop and maintain an Information Systems disaster recovery plan.
- -- apply an in-depth problem solving approach to the identification, analysis, implementation, and solution of problems encountered in the Information Systems functions.
- -- establish and maintain an up-to-date file of current and future developments in the field of Information Systems.
- -- demonstrate on-going top-level human relations, problem solving, and communications skills.
- -- promote the Information Systems project team approach in all levels of the organization.

Course content:

1. Principles of Office Automation (15%).

   Review of the skills and knowledges which an Information Systems analyst or Office Systems specialist or high-level end user should possess. Management functions of planning, organizing, controlling, and directing will be stressed to the extent that they are necessary to coordinate and analyze Information Systems in any office environment.

2. Strategies for Promoting Information Systems in the Automated Office (15%).

Review of the organizational and individual strategies to gain familiarity with planning for and actuating the Information Systems function in the automated office includes discussion of the role of professional organizations, access to appropriate and relevant literature and databases, continuing education, role of consultants, field trips and vendor demonstrations, and the role of work teams. Techniques for decisioning Information Systems in the office, i.e., conducting feasibility studies, project team approaches, research skills, surveying and interviewing skills, will be reviewed.. Attention also is given to a discussion of the critical issues in the automated office environment: ergonomic; health and safety; human; organizational; procedural; technical; and factors relating to obsolescence.

3. Information Systems Analysis Techniques (50%).

Emphasis is placed on conducting feasibility studies in the automated office which cover the acquisition of hardware, software, peripherals, telecommunications/networking, media, or other needs of end users and/or management. Project teamwork is emphasized.

4. Installation, Maintenance and Security of Information Systems (20%).

Installation, maintenance, and consideration of factors in a new and/or existing automated system. Data and physical security features and/or guidelines for securing systems to manage, process, manipulate, and disseminate information..Focus is on utilizing written and oral communication skills to present strategies to management for installing maintenance and security of automated equipment for Information Systems.

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COURSE TITLE: **Communication for the Automated Office**

Course level: Freshman or Sophomore.

Course duration: Two semesters.

Prerequisites: None.

Course description: This course was developed as part of this curriculum because of the strong input from business educators and Information Systems professionals. The developers of this curriculum are aware that external accreditation requirements may have an impact on these courses within business/office technology programs, and that there may be existing courses which will overlap with the course content. The course objectives listed below reflect the **validated** competencies which resulted from the participation in the Information Systems Curriculum Survey by business educators in the state of Texas and members of the Association for Information Systems Professionals on a nation-wide basis. A review of existing courses, which may parallel or overlap with the objectives of this course, will ensure that students are qualified for positions in Information Systems in the automated office environment.

Course objectives: At the end of the this course, the student will be able to:

- -- design, organize data for, create, and prepare visual aids for use in presentations.
- -- make oral presentations.
- -- gather, interpret, and organize information.
- -- write letters, memos, and reports.
- -- use automated equipment to enhance communication effectiveness and efficiency.
- -- identify the impact of human, technological, organizational, and corporate climate factors which affect communication effectiveness.
- -- develop documentation support for decision making in the automated office environment.
- -- develop documentation support guidelines for use of hardware, software, peripherals, telecommunications, and other equipment in the office.

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COURSE TITLE: **Human Behavior in Organizations**

Course duration: One semester.

Prerequisites: None.

Course description: This course was developed as part of this curriculum because of the strong input from business educators and Information Systems professionals. The developers of this curriculum are aware that external accreditation requirements may have an impact on these courses within business/office technology programs, and that there may be existing courses which will overlap with the course content. The course objectives listed below reflect the **validated** competencies which resulted from the participation in the Information Systems Curriculum Survey by business educators in the state of Texas and members of the Association for Information Systems Professionals on a nation-wide basis. A review of existing courses, which may parallel or overlap with the objectives of this course, will ensure that students are qualified for positions in Information Systems in the automated office environment.

Course objectives: At the end of this course, the student's contribution to an organization will be enhanced by an awareness of the importance of the interpersonal skills which are listed below:

- -- communications (speaking, writing, listening, questioning).
- -- motivation.
- -- dependability.
- -- reliability.
- -- time management.
- -- pride in self, work, work unit, and organization.
- -- getting along with people at all levels of an organization.
- -- problem solving and decision making/judgment.
- -- professionalism (including ethics, morals, values).
- -- ability to work independently.
- -- interest in and knowledge of job.
- -- attitude.
- -- attendance.
- -- team work.
- -- follow through and follow up.
- -- sense of responsibility.
- -- flexibility.

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SUGGESTED CAREERS IN INFORMATION SYSTEMS:

This curriculum should provide the essential foundation for progress or entry into an Information Systems career path. Below is a selective list of titles which illustrate the variety of positions currently being filled at various levels of organizations in Information Systems. Research has shown that many of these positions have been newly created within the last two to three years:

Administrative Assistant
Administrative Secretary
Administrative Services Coordinator
Administrative Services Specialist
Administrative Services Assistant Vice President
Administrative Systems Coordinator
Data/Word Processing Coordinator
Executive Secretary/Assistant
Information Center Director
Information Center Manager
Information Center Specialist
Information Processing Supervisor
Information Processing Systems Manager
Information Systems Director
Information Systems Manager
Information Systems Supervisor
Information Systems Trainer/Coordinator
Marketing Support Representative
Office Automation Analyst
Office Automation Coordinator
Office Automation Manager/Supervisor
Office Automation Specialist
Office Automation Supervisor
Office Manager
Office Services Manager
Office Services Supervisor
Office Systems Analyst
Office Systems Manager/Supervisor
Office Systems Specialist
Secretarial Services Supervisor
Senior Executive Secretary
Senior Office Systems Analyst
Senior Software Specialist
Senior Word Processing Technician
Software Specialist
Systems Administrator
Systems Analyst/Senior Systems Analyst
Systems Manager
Systems Trainer
Voice Communications Analyst
Word Processing Administrator/Coordinator
Word Processing Operator/Lead Worker
Word Processing Specialist
Word Processing Supervisor
Word Processing Center Manager/Supervisor